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Journal of the Missouri Native Plant Society

WALLACE R. WEBER
(1934–1997)

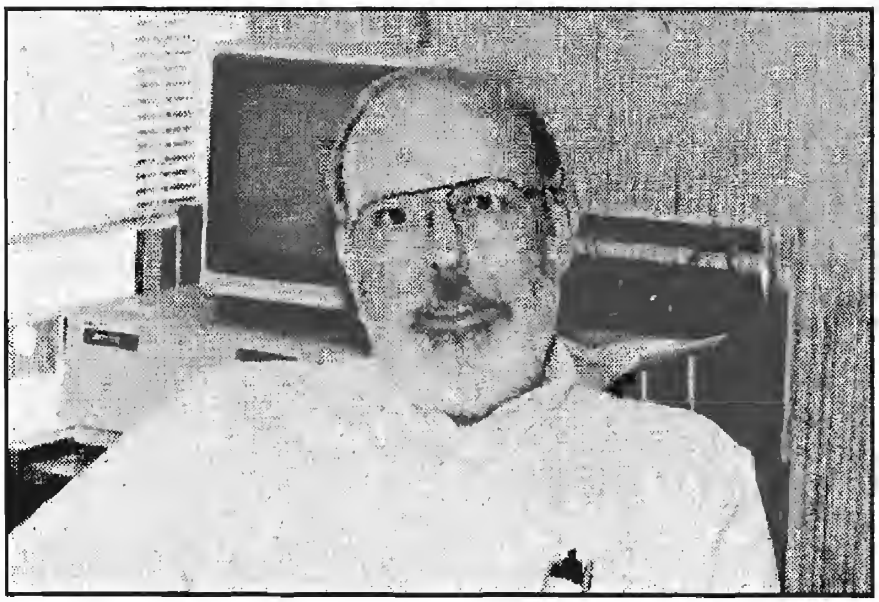

Photo courtesy of Paul L. Redfearn, Jr.

Editors' note: Several people provided material for this tribute to our friend, Wally Weber, notably Paul Redfearn, Michael Skinner, Bill Summers, and Stephen Timme.

On July 8, 1997, the Missouri Native Plant Society lost one of its best friends when Wally Weber passed away at the young age of 62 after a brief struggle with stomach cancer. His contributions to the Society will long be remembered.

Wallace Rudolph Weber was born on 1 August 1934 in Murphysboro, Illinois, the son of Rudolph William and Theresa Rose Peters Weber. After graduating from high school, an interest in the outdoors led him to attend Southern Illinois University, in Carbondale. There he received his B.A. degree in 1956 and his M.S. in 1959. His Master's thesis, completed under the direction of Dr. Robert H. Mohlenbrock, was on the flora of the Piney Creek area of southern Illinois.

After completing his Master's degree, Wally was a biology instructor at Otterbein College, in Westerville, Ohio, until 1962. During this period, he married Erma Loise Roth (on 16 July 1960). Their happy marriage resulted in two daughters, Renee and Amy.

In 1962, Weber was accepted into the doctoral program at the Ohio State University, in Columbus, where he received his Ph.D. in botany in 1968. His doctoral dissertation, completed under the direction of Dr. Richard T. Fischer, concerned interbreeding in a group of midwestern species of *Silphium* (Asteraceae). He was to continue to be fascinated with natural hybridization in *Silphium* for the rest of his life.

After graduation, Weber accepted a position in 1969 as assistant professor in the Biology Department of Southwest Missouri State University, in Springfield. There he joined fellow botanists Paul Redfearn and Grant Pyrah in what was to become the most active program of instruction and research in field botany of any of the state's academic institutions. Weber was promoted to associate professor in 1970 and received full professorship in 1979. He was active in teaching until the end, with his summer field biology course scheduled to begin the week after his death. Wally also was planning his retirement at the time.

During his 28 years on the faculty at Southwest Missouri State, Weber devoted a great deal of time to both undergraduate and graduate teaching and advising. He served as major professor or committee member for a number of graduate students, including his final student, Michael Skinner, now with the Missouri Department of Conservation. For a number of years, he was in charge of the undergraduate advisor program for biology majors at the school. His research during his profes-

Wally Weber in a patch of *Silphium*, September 1980
Photo courtesy of Stephen Timme

sional career was mostly floristic, and he completed numerous grants and contracts for such government agencies as the National Park Service and the Mark Twain National Forest, often in collaboration with students and other faculty members.

Wally was a member of several professional organizations, including the International Association of Plant Taxonomists, American Society of Plant Taxonomists, Botanical Society of America, and Sigma Xi, the Scientific Research Society. He also was active in a number of other organizations, including Zero Population Growth, The Nature Conservancy, Ozark Society, Sierra Club, Vision 20/20, and the Community Task Force Environmental Collaborative of Springfield. He was particularly active in the Missouri Prairie Foundation, on whose board he served for a number of years. Wally also was influential in promoting environmental concerns as an active member of the Lutheran Church.

Wally Weber attended the first meeting of persons interested in forming a state wildflower society (on 7 October 1978 in Jefferson City), and when the Missouri Native Plant Society was formed in 1979, he became a charter member. He frequently bought memberships in the society for his graduate students as encouragement for them to become active in local botany outside the university. He was a constant source of ideas to advance the Society programmatically, including his spearheading of a project to produce a floristic manual for the state that unfortunately never was completed (Weber, 1980). His first formal appointment was as part of the Missouriensis Review Committee, in 1981. He then served on the Board 1981–1989 and was Chapter Representative for the Springfield Chapter 1989–1992.

Weber's early interest in computerization of botanical information was first presented to the Society at its initial annual meeting in 1980 (Missouriensis 2[1]:2, 1980), when he offered to make the resources of Southwest Missouri State University available for a Society project on plant distributional data. This was to develop into the Missouri Flora Atlas Project, which published 15 installments of the "Missouri Botanical Record" in Missouriensis 1982–1992. Weber was joined by his colleague in the Computer Sciences Department at Southwest Missouri State,

William T. Corcoran, who designed a computer program to produce county dot maps from a database of plant distributions. The two published an analysis of the project (Corcoran and Weber, 1991). Unfortunately, the computerized data on plant distributions was never formally compiled into a printed atlas, a project that Weber was working on until the end. This phase of the project will be seen through to completion during 1998 by Paul Redfearn and Michael Skinner.

In addition to his professional contributions to the Missouri Native Plant Society, Wally made his mark in numerous other ways. He led a number of field trips for the group, including one involving a now legendary bus ride with a broken engine coil whose pieces were reattached with barbed wire from a nearby fence. He also was in charge of MONPS buttons and keyrings, which he constructed with his button-making kit and plant photographs. At one time, Wally also wanted to produce a guide to the Society's favorite restaurants around the state. It was even rumored that he knew the locations of every Dairy Queen in Missouri and Arkansas.

In recent years, Weber developed several health problems, including diabetes. He suffered from cardiovascular disease and endured triple-bypass surgery toward the beginning of 1997. He had considered early retirement the year before, and his heart troubles convinced him that he should retire soon. Unfortunately, the cancer cut short these plans. Wally's gentle wit and straightforward commitment to the environment in general and botany in particular were an inspiration to his many students and friends. A scholarship fund has been established in his honor at Southwest Missouri State University to benefit graduate studies in Plant Science. Additionally, in December 1997 a bur oak tree was planted near Temple Hall at Southwest Missouri State University and dedicated to the memory of Wallace R. Weber, teacher, botanist, environmentalist, and outstanding individual.

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A NEW ORCHID FOR THE STATE OF MISSOURI: THE LONG-BRACTED ORCHID, *COELOGLOSSUM VIRIDE* VAR. *VIRESCENS*

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In late May, 1997, a small population of the long-bracted orchid, *Coeloglossum viride* (L.) Hartm. var. *virescens* (Muhl. ex Willd.) Luer, was discovered in northern Missouri near Kirksville. This is a new record for Missouri (George Yatskievych and Bill Summers, Flora of Missouri Project, pers. comm.). The plants were growing on a north-facing, wooded slope under a mixture of relatively young shingle oak (*Quercus imbricaria*), black oak (*Q. velutina*), black cherry (*Prunus serotina*), slippery elm (*Ulmus rubra*), hazelnut (*Corylus americana*), and eastern red cedar (*Juniperus virginiana*). About a dozen plants were located at the site, and they were restricted to an area near the woodland margin. No plants were seen in a narrow clearing (disturbed prairie remnant) just upslope from the site, nor in the more deeply shaded woods further downslope toward a creek bed.

Voucher Collection: Adair County, Greentop, ca. 6 mi N and 2 mi W of Kirksville on Rte. AA, on privately-owned property, T64N R15W S32 NW¼ of SE¼, ca. 900 m elevation, 31 May 1997, *E. A. Hooper 97-26* (NEMO, MO).

Coeloglossum is a monotypic genus belonging to Tribe Orchideae of the subfamily Orchidoideae (Dressler, 1993). It has a circumboreal distribution and has been divided into two varieties. The typical variety, *C. viride* var. *viride*, occurs throughout Europe and Asia (except the most eastern parts), and across the northern parts of Alaska and Canada to Iceland. This

variety tends to be shorter, is less robust, and has shorter floral bracts than the mainly North American variety *C. viride* var. *virescens*.

The species was first described by Linnaeus in 1753 (as *Satyrium viride* L.) and has long been treated as a member of *Coeloglossum* (a genus designated by Hartman in 1820) by European botanists. However, earlier North American botanists tended to place it in *Habenaria* Willd. (usually as *Habenaria viridis* (L.) R. Br. var. *bracteata* (Muhl.) A. Gray). See Luer (1975) for complete synonymy.

Coeloglossum viride var. *virescens* is a relatively small and inconspicuous orchid that is widely distributed in northern North America and parts of Eastern Asia. According to distribution maps presented in Luer (1975) and Homoya (1993), the long-bracted orchid occurs from southern Alaska to eastern Canada, with extensions into the western and eastern United States. In the western United States, the orchid occurs in parts of Washington, Montana, Wyoming, Colorado, Utah, Arizona and New Mexico. In the eastern United States, it occurs in North Dakota, Wisconsin, Minnesota, and New England (with a southward extension to North Carolina along the Appalachian Mountains), and in the northern parts of Ohio, Indiana, Illinois, and Iowa.

The distribution maps in Luer and Homoya differ slightly with respect to the location of *Coeloglossum* in the states surrounding Missouri. Both maps indicate that the orchid occurs in central and northern Iowa and northern Illinois, but only Homoya's map includes a small region at the junction of Nebraska, Iowa, and Missouri. On this latter map it appears that the plant occurs in Missouri; however, these sites probably correspond to those listed in the Atlas of the Flora of the Great Plains (Great Plains Flora Association, 1977), in which *Coeloglossum viride* var. *virescens* is shown to occur in Pottawatamie County, in southwestern Iowa, and in Richardson and Otoe Counties, in southeastern Nebraska. Thus, the closest known populations of *Coeloglossum viride* var. *virescens* to the new Missouri site are approximately 250–300 km away (either to the north or to the west).

Across its range, *Coeloglossum viride* var. *virescens* grows in a variety of habitats. It is usually found in mesic woods with acidic soils (with a variety of aspects), but it may also occur in wetter situations such as at the edge of swamps, bogs, or vernal pools (Correll, 1950; Luer, 1975; Case, 1987; Homoya, 1993; Smith, 1993). Although it can be common in northern states and in Canada, it is not abundant in the states surrounding Missouri. Mohlenbrock (1970) listed it as "rare" (in only 13 northern Illinois counties) and Homoya (1993) referred to it as an "unsociable" species, because in Indiana it rarely occurs in populations of more than a few individuals. This new Missouri population appears to be "large", with at least 12 individual plants.

Although *Coeloglossum viride* var. *virescens* grows in a variety of habitats, the site in Missouri (relatively young secondary forest) seems a bit unusual. I have seen no reports of a similar habitat in other states. The overstory trees are all less than 6.5 inches dbh and the site is crowded with the lower tree branches. Understory plants at the site include wild strawberry (*Fragaria virginiana*), avens (*Geum* sp.), violets (*Viola* spp.), Virginia creeper (*Parthenocissus quinquefolia*), poison ivy (*Toxicodendron radicans*), coral berry (*Symphoricarpos orbiculatus*), agrimony (*Agrimonia parviflora*), bedstraw (*Galium* spp.), gooseberry (*Ribes missouriense*), thimbleweed (*Anemone virginiana*), aromatic sumac (*Rhus aromatica*), multiflora rose (*Rosa multiflora*), two grape ferns (*Botrychium virginianum* and *B. dissectum*), and the ebony spleenwort (*Asplenium platyneuron*).

The orchids at the Missouri site were scattered across a small area. *Coeloglossum viride* var. *virescens* is not clonal, and aboveground growth is reported to arise annually from a thickened, palmate tuber.

The orchids were in flower when first discovered in late May, and they were starting to fruit by mid-June. The flowers of this species tend to stay green and in good condition well into fruiting time (greenish flowers were seen in September on some inflorescences). The plants are less than 25 cm tall and relatively inconspicuous. Flowering plants have 4 or 5 broad, slightly obovate, cauline leaves, the largest of which were about 6.5 cm

long by 2.5 cm wide. The stem and leaves are completely glabrous.

The flowers of Coeloglossum are very distinctive, and those of the Missouri plants match published descriptions from other areas (measurements included below were taken from Missouri plants). The flowers are small (1–2 cm long) and arranged in a loose spiral along a terminal, spike-like inflorescence (about 7–10 flowers per inflorescence). Flowers are green, except for a reddish-purple column, and each flower is subtended by a conspicuous leaf-like bract that far exceeds the flowers in length. The bracts are linear-lanceolate and up to 2.5 cm long by 0.5 cm wide.

The perianth consists of three green sepals and three greenish petals, with the "lowermost" petal modified into a tongue-like labellum. The sepals are more or less ovate, and about 5 mm long by 3–4 mm wide. The two dorsal petals alternate with the sepals, are linear-lanceolate (about 1–2 mm wide), and slightly shorter than the sepals. The sepals and dorsal petals converge to form a hood over the central column. The column itself is darkly colored (reddish purple) and consists mainly of two large anther sacs connected by a translucent membrane.

The labellum is flat, oblong, and about 5 mm long by 2–3 mm wide. It ends in two lateral lobes or blunt teeth (about 0.5 mm long), and some (especially younger) flowers have an additional central lobe. At the base of the labellum, near the column, are two submarginal, slightly purple grooves or pouches that apparently function as nectaries (Luer, 1975). There is also a narrow, raised, purplish ridge in the center of the labellum that leads to the entrance of the spur. The spur in these plants is very small (1–2 mm long), pouch-like, and more or less hidden beneath the tongue-like labellum. The opening to the spur is small and inconspicuous.

The ovary is relatively large (about 1 cm long by 0.5 cm wide), twisted, and ribbed longitudinally. Each ovary matures into a brown, papery, more or less upright capsule that often persists on the stem through winter.

Little is known about the pollination biology of this orchid. As discussed by Luer (1975), Charles Darwin thought this species was insect pollinated because he speculated that the small

opening to the nectar spur delayed the pollinator long enough to allow pollinium attachment. There are a few other reports of insect pollination in this species. According to van der Pijl and Dodson (1966), there have been sightings of pollinium removal by a saw-fly (*Tenthredopsis*), a mosquito (*Tipula*), wasps (*Cryptus* and *Ichneumon*), and beetles (*Cantharis*). These reports are all based on observations of European plants of *C. viride* var. *viride* (see below). The presence of an apparent nectary on the labellum indicates the flowers of *Coeloglossum* might be insect pollinated. Catling (1983), however, included reference to work by Hagerup (1951) who indicated that *C. viride* var. *viride* was autogamous in the Faroe Islands of Denmark, because pollen from the incoherent pollinia could fall directly on the stigma.

Of all Missouri orchids, *Coeloglossum viride* var. *virescens* is most likely to be confused with the pale green orchid, *Platanthera flava* (L.) Lindley var. *herbiola* (R. Br.) Luer, which also occurs in northern Missouri. Both have fairly large cauline leaves, small greenish flowers subtended by conspicuous floral bracts, and a flattened, unfringed labellum. The pale green orchid, however, has shorter floral bracts; the nectar spur is long (up to 10 mm long) and thin, rather than small and pouch-like; the tip of the labellum is entire to erose, without marginal teeth or lobes; and there is a small tubercle on the upper surface of the labellum (hence its alternate common name, the tubercled orchid).

It is likely that more populations of *Coeloglossum viride* var. *virescens* are awaiting discovery in northern Missouri. Next summer, I will search more north-facing slopes on the property where the plants were first discovered and I hope others will keep an eye out for this inconspicuous, green-flowered, long-bracted orchid.

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TWO NEW NATIVE PLANTS IN MISSOURI

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During the past 35 years since the original publication of Julian Steyermark's (1963) *Flora of Missouri*, more than 300 taxa have been added to the register of the state's flora. Field work in Missouri continues to result in new botanical discoveries each year. This paper provides accounts of two previously unreported taxa that are considered native to the state's flora.

During 1995, I was engaged in a survey for plants of conservation concern for the Salem District of the Mark Twain National Forest (Summers, 1995). While botanizing an area to the northeast of the Karkagne Scenic Drive, ca. 8 km north of Centerville, I encountered a sedge that was unfamiliar and did not fit the keys in Steyermark (1963). Plants were common locally along an old roadway on a dry ridge top (T32N R01E S5 SE¼) , forming clumps in cherty soil of an upland forest. This site has vegetation typical of hundreds of similar places in the Ozarks. Dominant trees are *Carya tomentosa, Pinus echinata, Quercus alba, Q. coccinea*, and *Q. velutina*. The understory consists of *Acer rubrum, Cornus florida, Parthenocissus quinquefolia, Rubus* sp., *Sassafras albidum, Vaccinium pallidum*, and *Viburnum rufidulum*. A ground flora typical of this type of habitat is present, including *Aureolaria flava, Carex hirsutella, C. nigromarginata, C. umbellata, Hedyotis longifolia, Hypericum hypericoides, Juncus tenuis*, and *Solidago petiolaris*, among other species. In addition to the undetermined sedge, the state watch-listed ribbed sedge, *Carex virescens* was present.

A voucher specimen(12 May 1995, *Summers 7351*) is now accessioned at the Missouri Botanical Garden Herbarium (MO). Initially, this plant remained unmounted until 1997, when I was able to consult with Anton A. Reznicek of the University of Michigan Herbarium, an authority on taxonomy of the genus *Carex*. Doctor Reznicek recognized the specimen as a new state

record, *Carex willdenowii* Schkuhr ex Willd. (Cyperaceae). This experience, in which an unusual specimen is determined to be of state significance years after its collection, underscores the need for field botanists to make vouchers of interesting and important plant finds, rather than merely recording sightings.

Carex willdenowii is a member of *Carex* section *Phyllostachys*, a small group of about eight closely related species distributed through portions of the United States and Canada. The section is characterized by solitary, few-flowered spikes on peduncles arising from the base of the plant. The staminate portion of each spike is toward the tip, and the lowermost pistillate scales are greatly elongated and leaflike (Catling et al., 1993). In Missouri, the section previously has been represented only by the widespread *C. jamesii* Schwein. *Carex willdenowii* differs from *C. jamesii* in having spikes with mostly 4–9 (vs. 2–4) perigynia, these with the main body elliptic obovate (vs. circular to broadly elliptic-obovate) in outline, and in its staminate scales with rounded to pointed (vs. truncate) tips.

Carex willdenowii is widely distributed in the northeastern United States and adjacent Canada west to Illinois, Missouri, and Tennessee, with a disjunct population in Arkansas. Occurring in both Arkansas and southwestern Illinois and growing in an unremarkable, widespread habitat, it seems likely that other populations of this sedge occur in the Ozarks of Missouri. Perhaps they have been overlooked by botanists as robust plants of *C. jamesii* in the past.

A second interesting addition to the state's flora was discovered during a floristic inventory by the Natural History Section of the Missouri Department of Conservation's newly acquired Jerry J. Presley Conservation Education Center, located along the Current River about 5 km N of Round Spring on the west side of State Highway 19, in Shannon County. This property, which formerly was the executive retreat of an Illinois paper company, constitutes an inholding of the Ozark National Scenic Riverway and contains frontage along both banks of the Current River. The piece of land on the west and south side of the river (T30N R5W S1 S½) is not directly accessible from the road into the property and access involves fording the river. It was on a series of low dolomite bluffs overlooking the river that

a population of the wild monkshood (*Aconitum uncinatum* L., Ranunculaceae), was discovered. A voucher (24 Sep 1997, *Summers et al. 8335*) was collected and accessioned at MO.

Several hundred plants of *A. uncinatum* occur along the top of the bluffs for about 0.5 km of river frontage. Plants were relatively common locally in a mesic upland forest. Most of the population consisted of vegetative plants, many with only basal rosettes, and flowering was greatest in an area where the tree canopy had been partially opened by earlier beaver activity. Dominant overstory trees at the site are *Acer rubrum, Carya tomentosa, Fraxinus americana, Juniperus virginiana*, and *Quercus alba*, with some shade received from large individuals of *Platanus occidentalis* rooted below the bluffs. The understory includes large stands of *Asimina triloba*. The ground flora contains a variety of herbaceous species, notably *Adiantum pedatum, Asarum canadense, Brachyelytrum erectum, Corallorhiza odontorhiza, Desmodium nudiflorum, Galium concinnum, Hepatica nobilis, Monarda bradburiana, Phryma leptostachya, Prenanthes altissima, Solidago caesia, S. flexicaulis*, and *Trichophorum planifolium* (=*Scirpus verecundus*).

Aconitum uncinatum is mostly a species of the Appalachians and adjacent Piedmont, and is distributed from Pennsylvania south to Georgia and west to Ohio, Kentucky, and Tennessee (Brink, 1982; Brink and Woods, 1997). A disjunct population occurs in southern Indiana (Hardin, 1964). It is closely related to a widespread western taxon, *A. columbianum* Nutt., which also has disjunct populations in Iowa, Wisconsin, Ohio, and New York. Both produce tapered tubers and have similar, showy, blue flowers. Both are also grown as garden ornamentals, but there is no evidence to suggest that the Missouri population escaped from cultivation. The two species differ in details of the leaf cutting, but most prominently in belowground structures (tubers separated by a thin connecting rhizome in *A. uncinatum*, but contiguous in *A. columbianum*) (Brink and Woods, 1997). A flowering individual gathered with an intact rootstock by Jim Rathert of the Missouri Department of Conservation shortly after the initial discovery of the population (29 Sep 1997, *Rathert* s.n., MO) disclosed tubers sep-

arated by a thin rhizome, confirming the identity of Missouri plants as *A. uncinatum*.

Vegetative plants at the Missouri site were present mostly as small rosettes of palmately lobed leaves with irregular margins. Flowering individuals had solitary stems up to 2 m long with the tips arched downward and frequently somewhat twining.

Wild monkshood would key to *Delphinium* in the key to genera of Ranunculaceae in Steyermark (1963). It differs from all members of that genus in its flowers with a large, helmet-shaped (hooded) upper sepal that is not spurred (the two spurred petals are hidden in the hooded sepal). In contrast, the upper sepal of *Delphinium* species is spurred rather than hooded, with the sepal spur enclosing the spurred petals.

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ANOTHER NEW INTRODUCTION FOR MISSOURI

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Ammoselinum butleri (S. Watson) Coult. & Rose is a diminutive member of the parsley family (Apiaceae or Umbelliferae) known commonly as sand parsley. The four members of the genus *Ammoselinum* apparently have not been the subject of a modern monograph, but the genus is well-marked and relatively lacking in taxonomic controversy. Three of the species grow in the south-central and southwestern United States and adjacent Mexico, and a fourth species occurs in South America.

Ammoselinum butleri has the easternmost range of any species in the genus and occurs from eastern Texas and Oklahoma to Arkansas, Mississippi, and Lousiana (Mathias and constance, 1970; Thomas and Rich, 1981), with introduced populations in southeastern Kansas (McGregor, 1986) and North Carolina (Boufford, 1977). In its native habitat, the species occurs primarily in "bottomlands and moist woodlands" (Mathias and constance, 1970), but it can occur in a variety of disturbed habitats as well.

I first collected this species on 8 May 1996, (*Hudson 866*, MO) after first observing it in late April. It was abundant in a poorly tended lawn in a yard along Shady Lane in Poplar Bluff (Butler County). Plants were noticeable from the street by their glaucous green coloration, which stood out in contrast to the rest of the lawn. Upon closer examination, tiny white flowers and mature fruits were noted. Initially, I was unable to determine the specimen except to place it in the Apiaceae. The voucher was sent to the Flora of Missouri Project, where it was misdetermined by George Yatskievych as an immature specimen of *Chaerophyllum procumbens* (L.) Crantz, which has superficially similar foliage. Because I was fairly certain that this determination was incorrect, I collected a second voucher the following year (2 May 1997, *Hudson 963*, MO) and resubmitted

this to the Project. This time a more stisfactory determination was forthcoming.

Ammoselinum does not key well in Steyermark's *Flora of Missouri*, but comes closest to *Chaerophyllum*. It differs from that genus in its fruit with more ribs and generally less divided leaves. The grayish glaucous appearance is apparent when plants are fresh, but tends to disappear upon drying. The fruits, which are glabrous and finely ribbed, resemble small barrels. The species should be looked for elsewhere in southern Missouri, especially in southwestern Missouri, near the populations in Cherokee County, Kansas.

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TWO NEW AND INTERESTING RECORDS FOR MISSOURI PLANTS

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In the process of collecting plants over the past several years, two new interesting plant records have been discovered for counties in southwest Missouri.

Akebia quinata (Houtt.) Dcne. is here reported for Barton County at the Lester Davis Woods just south of the boundary line of Prairie State Park. *Akebia quinata* is a monoecious, climbing woody vine in the family Lardizabalaceae. It has alternate, palmately compound leaves with 5 leaflets. The leaflets are oval, oblong or obovate, margins entire, rounded to slightly emarginate at the apex and acute to slightly acuminate at the base. The inflorescence occurs as an axillary raceme with both pistillate and staminate, odoriferous flowers. The pistillate flowers are ca. 1.5–2.5 cm in diameter, with 3 dark purplish brown sepals, no petals and 3 or more pistils. The staminate flowers are slightly more than 1 cm in diameter, with 3 pinkish sepals, no petals, and 6 stamens. Both pistillate and staminate flowers occur on the same raceme. The plants flower from late March through early May.

No fruits were observed, but according to Bailey (1949) they are dehiscent, sausage shaped berries to 10 cm long, purple at maturity, and covered with a waxy, whitish material. They ripen from September through October. It has been suggested by Dirr (1990) that the plants may be self-sterile or that the staminate flowers do not open when the pistillate flowers are receptive. However, there is a high success rate of fruit set when flowers are hand pollinated (Dirr, 1990).

Akebia is an Asian genus and imported from China to the United States in the early 1900's. It apparently was grown as a popular climber over trellises and is still found in a few nursery catalogs today.

The property where plants occur was strip mined in the early 1900s and subsequently purchased by Lester Davis, a forester who enjoyed planting ornamentals, among them *Akebia quinata*. Plants were growing in large mats over hardwoods and pines to at least 10 m high. It appears that the plants are doing well from annual vegetative growth. Subsequent observations indicate no fruit is being produced.

Voucher collection: Barton County, Lester Davis Woods, ca. 5.5 km N of Mindenmines (Highway 160), T32N R33W S29 NE¼, 37°30'N Lat.; 94°39'W Long., 28 Apr 1997, *S. L. & C. Timme 14091* (MO, PITT, SMS).

Phacelia purshii Buckley was discovered in a rich wooded area at the Noel city park. This species is known from numerous counties in eastern Missouri, with the closest populations located in Reynolds and Carter Counties, more than 400 km east of the McDonald County site. However, it has been reported (Smith, 1988) from Benton County, Arkansas, just a few km south of Noel. The Noel population consists of more than 300 plants that are scattered over a fairly large area. This species is easily distinguished from other members of the genus by the strongly fringed corolla lobes with the outer surface glabrous.

Voucher collection: McDonald County, rich wooded flood-plain of the Elk River at the E end of Noel city park, T21N R22W S15 SW¼,Latitude 36°32'N; Longitude 94°34'W, 5 May 1996, *S. L. Timme & C. Timme* (MO, PITT).

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MISSOURI NATIVE PLANT SOCIETY AWARDS (1986–1997): A SUMMARY

The Missouri Native Plant Society established an awards program at its June 1985 board meeting (see Missouriensis 6:35, 36, 1985). Awards in four areas were developed to periodically honor individuals who had furthered various goals of the Society, to be commemorated with engraved plaques. Originally there were four award categories and two certificates of recognition designated:

Erna A. Eisendrath Memorial Education Award: To be awarded to an individual who, through teaching, writing, or other forms, has significantly conveyed to others an appreciation and knowledge of Missouri's native flora. This award may be presented annually if merited.

Unnamed Research Award: To be awarded to an individual who has made a significant contribution toward furthering the knowledge of Missouri flora. This award may be presented annually if merited for accomplishments made during the year.

Plant Stewardship Award: To be awarded to an individual or organization for presentation of important elements of Missouri's flora through purchase, registry, and/or management practices. This award may be presented annually if merited.

Julian A. Steyermark Award: The Society's highest award to be presented to an individual who has made outstanding contributions to any or all aspects of Missouri botany. This award is to be given as merited for superior achievement.

Certificates to the five most significant plant discoveries during the award year preceeding each annual meeting.

Certificates to the three individuals who have most actively contributed voucher specimens of Missouri plants to regional herbaria within the award year preceeding each annual meeting.

Over time, there were changes to this list. The certicate categories were soon dropped because of difficulties with identifying winners. Following the death of Arthur Christ in 1991, the Research Award was renamed in his honor. In 1995, a Service Award was added to honor individuals making outstanding contributions to the functioning of the Society.

As the time for nominations for the next round of awards is at hand, it seems appropriate to list past winners in each category. Members are encouraged to make written nominations to Larry Morrison (see list of officers on inside front cover).

ERNA R. EISENDRATH MEMORIAL EDUCATION AWARD

1986: Edgar Denison
1987: Ginny Wallace
1988: Dr. Alice Nightingale
1989: Linda S. Ellis
1991: Bruce Schuette
1992: Katherine Chambers
1993: James M. Sullivan
1994: Karen S. Haller
1995: Bill Davit
1996: Doug Ladd
1996: Frank Oberle

ARTHUR CHRIST RESEARCH AWARD

1986: Bill Summers
1987: Paul Nelson
1988: Joanna Turner
1989: Louis G. Brenner
1992: Tim Nigh
1995: Richard Guyette
1997: Timothy E. Smith

PLANT STEWARDSHIP AWARD

1986: Fred Hussman
1987: Craig Mackoy
1988: Mrs. Frank Lowry
1989: Onie & Betty Conkin
1990: John Weston
1991: Herb & Joan Domke
1992: Doug Ladd
1994: Larry Houf
1995: Sybill Amelon
1996: Penny Holtzmann

AWARD OF SERVICE

1997: Jack & Pat Harris

JULIAN A. STEYERMARK AWARD

1986: Art Christ
1987: John Wylie
1990: Norlan Henderson
1991: Paul Redfearn
1992: Clair L. Kucera
1993: Edgar Denison
1997: David Castaner

ANNOUNCEMENTS

Copies of plant lists and other information relating to the flora are requested for inclusion in the Society's flora file. Please send items to the archivist, Jim Bogler (see address on inside front cover).

Visit the MONPS Web Site at its new address:

www.missouri.edu/~umo-herb/monps

BOOK REVIEWS

Duke, James A. 1997. The Green Pharmacy. Rodale Press, Emmaus, PA. distributed by St. Martin's Press, 175 Fifth Ave., Room 1715, New York, NY 10010. $29.95. ISBN 0-87596-316-1. Hardbound

Duke has done it again! He has provided the consumer interested in medicinal plants a source that covers some 120 symptoms of the human body, from Athlete's Foot to Yeast Infections. Part One of the book is a guide to *The Green Pharmacy*. This section includes the safety aspects of using herbals for medicinal purposes (these pages should be read carefully by the inexperienced before using herbals), buying, harvesting, growing and storing medicinal plants. This section also contains information and instructions for making herbal tea, tinctures, poultices, and salves.

Part Two covers some 120 symptoms of the human body and how and what plants are used to treat them. There is a short general overview at the beginning of each symptom, followed by the plants that are useful for it. Each plant is given by common name, with scientific name in parentheses. This is followed by a variety of useful information concerning the plant species. and in some cases, the author provides a generalized recipe. Throughout the book are boxes that illustrate a particular species or provide interesting anecdotes about the plant or symptom. In several cases, a recipe is provided (e.g., in the section on overweight, there is a wonderful recipe the author calls Lean Mean Bran Muffins).

At the end of Part Two, the author provides an overview of his life with plants. This is a most interesting section, because in several ways it parallels the lives of many of us whose world seems to center on plants and the seemingly endless wonders of nature.

The only disappointment in the book, although minor and of personal taste, is the index. Under some entries, it will refer the reader to another entry. For example, if the reader looks in the index for coneflower, it will refer him or her to see *Echinacea*. Under *Echinacea* it provides the page number. This

is an annoying process when it seems that a page number could be put under coneflower as well as referring the reader to *Echinacea*.

The book provides a wealth of information concerning medicinal plants, whether the reader is a professional, amateur, or just enjoys a general interest in medicine. It is presented with solidly researched data and often includes the author's botanical humor. It also provides those not familiar with the importance of plants in medicine an enlightenment on their many uses and to some degree medicinal plant history. I highly recommend the book for anyone with an interest in plants and medicine.—Stephen L. Timme, T. M. Sperry Herbarium, Department of Biology, Pittsburg State University, Pittsburg, KS 66762-7552.

Kurz, D. 1997. Shrubs and Woody Vines of Missouri, illustrated by Paul Nelson. Missouri Department of Conservation. 387 pp. $14.00. ISBN 1-887247-12-2. Hardbound. [Also available in paperbound form for $7.00 plus shipping from the Hawthorn Chapter bookshelf. See Jan–Feb edition of Petal Pusher]

Here is a most cordial invitation to learn more about a very visible group of plants growing wild in Missouri. Even those who consider themselves proficient in field botany may find that this presentation becomes a handy reference.

The first section contains a reader orientation with a synoptic treatment of the natural divisions of Missouri, a discussion of plant names, where diagnostic keys fit in, propagation tips, and landscaping for wildlife and ornamental/natural beauty. This is followed by a set of keys in specially written language for the non-professional, i.e., all the rest of us. By dividing the keys into two parts, one part dedicated to shrubs and the other to woody vines, the author makes the keys individually shorter and not as visually intimidating as those found in full blown botany manuals. Throughout the book, botanically arcane terminology is minimized or parenthetically translated as needed, making for friendly reading for almost everyone.

The 133 shrubs and 37 woody vines are individually presented in 170 facing page pairs. One page is devoted to a versatile text and one page is devoted to a world-class black and white illustration of the subject plant. This juxtaposition of narrative and illustration conveys a kind of focused gestalt for each subject plant. The reader cannot view the illustration without being aware of the text and range map, nor study the text without being aware of the illustration. I found this to be efficient and far superior to publications that seemingly randomly scatter the graphics, text, and tables throughout.

Each text page follows a consistent menu comprising a narrative description of the flower, fruits, leaves, twigs, habitat, continental range (if you can't vizualize the geography of the lower 48 states, sneak a peek at the bare-bones state outline map stashed on the last two pages), wildlife uses, medicinal uses, remarks, and a state(with county detail) range map (current to 1963). The treatments cover a lot of territory on one page and must have been replete with opportunites for wandering off the subject. Fortunately Don Kurz is up to the task, consistently and succinctly delivering about the right kinds and amounts of information. Native plant advocates should be sure to note the cautions in the Remarks paragraph about exotic plants. Another regularly occurring feature in this paragraph is a note on the derivation of the scientific (Greek/Latin) name.

Those who reside in or around Missouri and are likely to have even a remote interest in this kind of book have probably already seen Paul Nelson's art work someplace. It deservedly appears in many publications and public places around the state. The size of the page in this book provides the space and scale for Paul to exercise his artistic talents to the benefit of everyone. Don Kurz remarks early in the book that the decision to use black and white graphics versus color photos was not easy. For my part, I am pleased with the decision made. This style of portrayal allows the artist to depict the plant in several parts, e.g., physically, seasonally, growth phase (flower, fruit, bud, twig, etc.), and to present each desired feature and characteristic in its most revealing perspective for the education of the reader. This is then all laid out in a balanced, eye pleasing, instant picture of each plant. If the color photo method had been

selected for this edition, it would have been tough to match the clarity of the pen and ink drawings, and would have required complicated trade-offs.

Any druthers? Yes, a few minor ones. The author assures us that updated nomenclature and county range maps are contemplated for the next edition. Perhaps some other minor changes can also be made at some future date. For example, by then perhaps the raccoon grape illustration will grow tendrils (noted in the text), the typo on the Selected Reference listing of Gleason & Cronquist will be repaired, the latest edition of Gleason & Cronquist (1991) will occur in the same list, a better quality Natural Divisions of Missouri map (the Big Rivers Division seems to suffer occasional stream piracy) may be supplied on the first two pages, and small unobtrusive scale lines will be positioned near appropriate images on the illustrations.

This book sheds some happy light on a shadowy niche between the basic botany text books and the encyclopedic tomes of the high tech professional. I was pleasantly surprised to find a book that makes it through design, writing, illustration, and printing where the average reader's ease of use and assimilation is sustained as the paramount principle. This book is one of that kind.

Now Don and Paul, how about one on grasses and sedges? Or maybe bryophytes?—Jack H. Harris, 9708 Green Park Rd., St. Louis, MO 63123.

Packard, Stephen, and Cornelia F. Mutel, eds. 1997. The Tallgrass Restoration Handbook. Island Press, Washington, D.C., in conjunction with the Society for Ecological Restoration. xxxii, 463 pp. ISBN 1-55963-320-4. Paperbound $ 25.00, clothbound $ 40.00.

For anyone yearning to help restore the beauty and diversity of the tallgrass prairies when the bison roamed, the long-awaited treatise on the subject is now available. It is a real pleasure to read *The Tallgrass Restoration Handbook—For Prairies, Savannas, and Woodlands*, put out by the Society For Ecological Restoration through Island Press. Edited by Stephen Packard and Cornelia F. Mutel, the *Handbook* is a collection of 21 essays by two dozen authors on everything related to the

process of planning a restoration project, selecting and planting appropriate seeds, land management and regulation, and protecting, restoring, and monitoring animals.

When Americans began to care about prairie conservation, the original prairies were nearly gone. The tallgrass prairie runs through parts of 19 U.S. states (all of Iowa and nearly all of Illinois and Missouri) and a bit of Canada. Tallgrass prairie has vanished more completely than any other major vegetation type in our county. Less than 1 percent of the original tallgrass prairies remain, crowded out by the lust for cropland and increasing urbanization. The fertile soil of the prairies was quickly converted to the bread basket of North America. Remnants are found in old cemeteries, railroad and highway right-of-ways, and some private and public lands. Not only should prairie remnants be protected and restored for biodiversity, soil and water protection, and habitat, but also for the glimpse back into history that they provide. Our prairies are important for both historical and educational purposes. Even less understood, oak savannas have been rediscovered by restorationists. The *Handbook* offers a thorough look on the up-to-date techniques used by restorationists in the active and growing field of tallgrass prairie and savanna restoration. The chapters are written by many practicing restorationists. The book begins with a description of prairie, savanna, and woodland ecosystems, followed by planning a restoration with a helpful key to restoration options to aid with decision making.

Preservation of the prairie requires active management, and this book is a good guide for both novice landowners and professional land managers. The book defines restoration as "natural area management as well as both *reconstruction* (e.g., planting prairie on plowed ground) and *rehabilitation* (e.g., nursing a degraded prairie back to good health)." The restoration process for a tallgrass prairie, savanna, or woodland may begin with one of four steps: choosing and planting seeds, burning, weed control, or monitoring. Packard and Mutel allude to restoration work being similar to battlefield medicine, as, "Restorationists must often act with imperfect knowledge if they are to act at all before the biodiversity they seek to preserve

disappears. Thus, restoration relies on art and intuition as well as on objective knowledge." The book shows how a degraded situation occurs and the best ways to proceed in order to successfully restore tallgrass. There is lots of useful advice, such as that in "Restoring Remnants," in which Packard and Ross invoke the Hippocratic oath: "First, do no wrong...". They suggest that the greatest effects from restoration come from new initiatives in logical areas. For example, there is a chapter on interseeding, the practice of throwing seeds directly onto an old field, a less intensive and destructive restoration technique than plowing the existing vegetation. The *Handbook* outlines the latest restoration techniques, yet is not "the last word" on the subject, and urges readers to explore and experiment on their own. Restoration is an extremely effective way to learn about the ecosystem being restored, and more importantly about our relationship with the land.

One of the most critical aspects of restoration is knowing the elements or species. This knowledge is needed in order to emphasize synthesis between elements of the wild, with the ultimate goal of a "reintegrated and flourishing landscape where there was once a mixture of tiny remnants, pastures, cornfields, and woodlots." This book is really a how-to manual, set up so that people will use it in the field. The tables and illustrations are very comprehensive. The six appendices are among the most useful parts of the book, particularly once you're underway and need reference materials or lists of plants or animals known to inhabit tallgrass systems. Technical specialists will really like the book's catalogue of the scientific names of plants and animals. If you're working on a restoration project, Doug Ladd's table of 988 vascular plants encompasses the characteristic flora of the midwestern tallgrass region. The appendices on sources of seeds and equipment, publication, and restoration contacts will prove useful in the working stage of restoration.

The *Handbook* takes a pragmatic approach, with lots of hands-on information, such as James Rinartz's discussion of the risks and benefits of creating new populations of rare plants. There is a section on how to monitor vegetation by Linda Masters. Monitoring is an important component to evaluate restoration efforts to gauge success. The *Handbook* does not shy

away from several discussions of burning, a delicate topic handled here in a suitably non-controversial way, with pieces by Wayne Pauly and Roger Anderson. One essay gives a description of conducting burns, yet the author cautions that reading the chapter will not qualify you to conduct a controlled burn; courses and field experience are needed. Other essays on "Controlling Invasive Plants" and "Tips for Gathering Individual Species" are practical and informative. This is a book for everyone who wants to reconnect to the landscape that made up the Midwest.

These papers have been a long time in the making, starting from a series of conferences in 1990. It would seem that in considering plant cycles and fundamentally changing the fabric of an ecosystem, techniques develop slowly and are tested by time. As the editors assert, ecological restoration is a young discipline. *The Tallgrass Restoration Handbook* bills itself as a cutting edge work on this topic. Even if you don't know a mycorrhizal fungus from a perennial sedge, this book is informative and necessary if you're looking to restore some tallgrass.—Susanne Greenlee and Duff Plunkett, The Nature Conservancy, Missouri Chapter, 2800 S Brentwood Blvd., St. Louis, MO 63144.

Rafferty, Milton. 1996. Rude Pursuits and Rugged Peaks: Schoolcraft's Ozark Journal 1818–1819. University of Arkansas Press, xiii, 170 pp. $ 25.00. ISBN 1-55728-412-1. Hardbound.

Preconceptions are perhaps the greatest obstacle to human progress. These insidious chimeras, while arguably essential to our survival, continually plague every aspect of our lives, and result in problems, misunderstandings, and errors both catastrophic and trivial.

So it is with natural history and ecology. For example, our concept of North American forest ecology was for decades based on flawed models and preconceptions derived from degraded woodlands that had been subject to more than a century of colonial impacts. Even today, some of these myths and preconceptions about "virgin" woodlands in the Ozarks pervade

a depressingly large segment of the population, including many professional biologists who should know better.

Fortunately, an enjoyable antidote is at hand. Milton Rafferty has done a superb job of presenting the Ozark narrative of Henry Rowe Schoolcraft. Schoolcraft was perhaps the most insightful and literate of the few travelers who recorded firsthand impressions of the Ozarks at or nearly coincident with the first European settlement of the region. from November 1818 to February 1819, Schoolcraft and Levi Pettibone traveled in a broad arc through the Missouri and Arkansas Ozarks at a time when much of the area was depopulated. The earliest European settlers were just beginning to colonize the region, having displaced the Native Americans who occupied and shaped the landscape for the previous ten thousand or more years.

Schoolcraft's narrative is a personal account of his trip and observations. He was a keen observer of natural features, and his detailed accounts of the vegetation, landscape, and especially geology paint an easily viewed glimpse of something at once familiar to any who have spent time in the Ozarks, and yet different from the Ozark landscape we see today. The value of these descriptions is that their author saw the last vestiges of the pre-European Ozark landscape firsthand, an advantage not afforded to subsequent generations.

One of the most striking aspects of Schoolcraft's account is his portrayal of Ozark woodlands, which are almost universally described as being very open, grassy, and free of undergrowth, with frequent expanses of "barrens" and "oak-prairie". Crossing the Big Piney near the present site of Houston, Missouri, Schoolcraft describes the country:

> *"Now and then an oak stood in our path; sometimes a cluster of bushes crowned the summit of sloping hills..."*

This theme continues throughout the Ozark journey:

> *"...a succession of limestone ridges skirted with a feeble growth of oaks, with no depth of soil, often bare rocks upon the surface, and covered with coarse wild grass..."*

The only descriptions of dense woodlands are associated with larger streams and deep valleys. Schoolcraft also encountered

extensive cane stands, reminding us of another vanished aspect of the Ozark landscape.

Several accounts describe dense young brush, undoubtedly due to the displacement of the Osage People in the previous decade, and the resulting abrogation of human fire regimes that had shaped the landscape for previous millennia. Schoolcraft encountered remnants of abandoned Osage habitations, and several hunters he encountered in the western Ozarks related tales of ongoing interacting between Osage and European people. Through these descriptions, another preconception is interred: European settlers did not colonize a new wilderness, but instead occupied a landscape that had been thoroughly occupied and modified for thousands of years, serving as home and hunting ground to various Native American populations. The single disappointment in the book is that the introduction skips this critical aspect of understanding our landscape history, and begins the section subtitled "Human Habitation" with early European settlement.

Anyone concerned with native plants, vegetation, or natural history of the Ozark region must read Schoolcraft's account. It provides a perspective essential to understanding the modern landscape. This is anti-preconception medication that is enjoyable. The personal aspects of the journey—Schoolcraft's inexperience with wilderness living, the physical hardships, and encounters with early settlers and travelers—provide historical perspective and serve to remind us about the realities of life and nature two centuries ago.

Milton Rafferty has presented Schoolcraft's narrative unmodified, except for the welcome addition of modern localities in brackets at critical points in the narrative. Because Schoolcraft's work was never widely available and last published in a limited edition in 1955, the reprinted narrative alone would be a valuable contribution, but the author has done far better. The narrative is laced with maps, illustrations, and early and contemporary photographs, all of which provide insights enhancing Schoolcraft's narrative without overpowering it. A concise introduction provides a biography of Schoolcraft and sets the physical, historical, and geographic stage for the narrative.

This grounding, which was lacking in the 1955 version, increases the value of the narrative by an order of magnitude.

A tabular appendix following Schoolcraft's account provides a series of points and the date Schoolcraft was there, a brief description of the contemporary landscape, and a list of relevant topographic maps. There is also a brief list of useful references at the end of the introduction. The University of Arkansas Press has done an admirable job of presentation and design, producing an attractive, easy to read book. The only part of the book to skip is the rambling, tedious poem "Transallegania" that Schoolcraft appended to his narrative.

It is not an overstatement that this book is essential reading if one wants to understand the landscape and vegetation of the Ozarks. Only with this historical perspective can we begin to understand the causes and magnitude of the changes that have impacted the Ozarks over the past two centuries. Understanding these changes is an essential foundation for insuring sustainable conservation of our Ozark heritage and resources. Through this work, Milton Rafferty has made an enduring, practical contribution to the Ozarks, enhancing the value and accessibility of Schoolcraft's narrative while insuring that the original flavor and intent are not tainted. In the conclusion of his preface, Rafferty recommends that the journal be read slowly, with pauses to reflect and compare with the contemporary landscape. I would add that the journal also be perused regularly, lest we forget historical perspective and fall prey to preconceptions.—Douglas Ladd, The Nature Conservancy, Missouri Chapter, 2800 S Brentwood Blvd., St. Louis, MO 63144.